

Monthly Progress Report for Corrective Measures Study for Material Disposal Area H, Potential Release Site 54-004, at Technical Area 54 January 2002

Prepared by the Material Disposal Areas Focus Area

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1.0 INTRODUCTION

This progress report summarizes Los Alamos National Laboratory (the Laboratory) activities completed during January 2002 on the corrective measures study (CMS) for Material Disposal Area (MDA) H, Potential Release Site (PRS) 54-004, at Technical Area 54. The completed activities are described in the CMS plan (Environmental Restoration Project 2001, 70319) and are approved by the New Mexico Environment Department Hazardous Waste Bureau (NMED HWB) on December 7, 2001. Other related activities are summarized below.

2.0 DESCRIPTION OF ACTIVITIES AND CONTACTS

High-Performing Team Activities

There were no High-Performing Team meetings in January 2002.

Resource Conservation and Recovery Act Facility Investigation Addendum

No new activities occurred on the Resource Conservation and Recovery Act Facility Investigation (RFI) addendum during this reporting period.

CMS Report

Laboratory ER Project MDA Focus Area staff met with a DOE Environmental Management (ER) Office of Science and Technology Subsurface Contamination Focus Area sponsored by the Lead Laboratory Technical Assistance Team peer review panel to discuss comments on the draft MDA H CMS report. The Technical Assistance Team was asked to review the technical approach and communication of results, including the modeling effort, development and adequacy of alternatives, and risk evaluation and coverage. The peer review panel members included the following ER staff from DOE facilities throughout the complex:

- Christine Langton—Savannah River Site
- Margaret MacDonell—DOE Center for Risk Excellence
- John Peterson—DOE Center for Risk Excellence
- Andrew Tompson—Lawrence Livermore National Laboratory
- David Janecky—Los Alamos National Laboratory

The panel presented their findings with Laboratory personnel. The review identified four main areas that could be enhanced to further strengthen the CMS report: organizational structure, modeling approach, technical evaluation of alternatives, and risk assessment. The CMS report is being revised to reflect these peer review comments.

The reviewers felt that there were too many models used in the assessment and that the technical justification for and links between the different models were not easily understood. In response to these comments, revisions to the GoldSim model resulted in a single system-level model that includes nearly all of the processes that occur at the site. Process-level models were used to simulate the following in detail: vapor-phase radon and tritium transport (finite element heat & mass transfer code [FEHM]), liquid-phase transport of water-soluble constituents through the vadose zone (FEHM), and near-surface modeling of the surface cover (Hydrogeologic Evaluation of Landfill Performance [HELP]). The system-level model

either used input from the process models (such as leakage rates through the cover) or was calibrated based on results from the more detailed process models.

Public and Stakeholder Involvement

No activities were conducted in January 2002.

Contacts

The MDA H CMS contacts are unchanged from the list provided in the initial progress report (Environmental Restoration Project 2002, 71479).

3.0 PERCENTAGE OF CMS COMPLETED

The Laboratory estimates 80% of the CMS has been completed to date.

4.0 PROBLEMS ENCOUNTERED/ACTIONS TO RECTIFY PROBLEMS

The status of the four problems described in the initial progress report is unchanged (Environmental Restoration Project 2002, 71479). One additional problem/issue (Number 5) was encountered in January 2002. NMED has requested that the Laboratory demonstrate how the proposed corrective measure will meet 40 CFR Part 264, Subpart G and F closure/post-closure care requirements. The closure/post closure care requirements are deemed applicable to MDA H primarily because shaft 9 is considered a regulated unit.

Actions to Rectify Problems 1, 2, and 3

The MDA HPT scheduled a series of meetings with modeling and regulatory compliance personnel in March and April 2002 to review the basis for the models, assumptions about site geology and hydrology, contaminant fate and transport, and regulatory issues.

Action to Rectify Problem 4

Focus group members will be provided with the resumes of up to ten individuals to review the MDA H CMS report before the February 26, 2002 focus group meeting; group members will be requested to select one reviewer each.

Action to Rectify Problem 5

The CMS report for MDA H will include a "crosswalk" that will identify applicable closure/post closure care requirements and show how the proposed corrective measure satisfies each requirement. The crosswalk will also reference the specific CMS report section describing how the different aspects of the proposed corrective measure meet the corresponding closure/post closure care requirements.

5.0 KEY PERSONNEL CHANGES

There have been no changes in key personnel from the list provided in the initial progress report (Environmental Restoration Project 2002, 71479).

6.0 PROJECTED WORK FOR FEBRUARY 2002

HPT Proceedings and Decisions

There are no HPT meetings scheduled for February 2002.

RFI Report and Addendum

NMED HWB will review the response to the RSI on the RFI report, and the Laboratory will assess the preliminary analytical data from volatile organic compounds (VOCs) and tritium samples collected from three boreholes at MDA H in December 2002, in accordance with NMED correspondence of December 3, 2001, (Young 2001, 71537). Work will continue on the RFI Addendum scheduled for submittal to NMED in April 2002.

CMS Report

MDA H technical team members will incorporate peer review comments into a second peer review draft CMS report, which will be reviewed by peer reviewers to ensure that comments were incorporated. Table 1 shows changes that were implemented in response to the reviewers' comments. These updates made the links between the various models much stronger and more easily understood.

Table 1
Peer Review Results

Before External Peer Review Comments	Response to External Peer Review Comments
<ul style="list-style-type: none">• The system-level GoldSim model calculated biotic translocation of waste, assuming that all waste was uniformly distributed and available for biotic uptake.	<ul style="list-style-type: none">• The system-level GoldSim model was revised to calculate the following transport mechanisms: biotic translocation of waste, liquid-phase transport of waste within the vadose zone, and vapor-phase transport of radon to ambient air. The waste is now partitioned into two regions, with only waste in the upper region available for biotic uptake. The radon and liquid-phase transport rates are consistent with the updated process-level models.
<ul style="list-style-type: none">• Radon transport was calculated with GoldSim, in a separate model from the system-level model. Radon exposure was assumed to occur from leakage into a basement. That exposure route was considered to be more conservative than required.	<ul style="list-style-type: none">• A process-level radon model was developed in FEHM, using the same domain as for the tritium and liquid-phase transport models. This model calculates flux into ambient air.• The system-level GoldSim model was updated to include radon transport. It was calibrated based on FEHM results.
<ul style="list-style-type: none">• Vapor-phase transport of tritium was calculated with FEHM.	<ul style="list-style-type: none">• The tritium transport calculation was left in FEHM.• GoldSim is unable to simulate the complex mechanisms involved in tritium transport.
<ul style="list-style-type: none">• Liquid-phase transport in the vadose zone was calculated with FEHM and not included in the system-level model. The FEHM domain was for all of TA-54 rather than specific to MDA H and differed from the domain used for the vapor-phase FEHM simulations.	<ul style="list-style-type: none">• The liquid-phase transport was recalculated with FEHM using the same domain as in the vapor-phase transport calculations.• The GoldSim system model was revised to include liquid-phase transport and to be consistent with the updated process-level model (FEHM).

Technical editing of the CMS report will begin in March, 2002. A schedule for MDA HPT meetings to review the CMS report will be developed. Specifically, meetings with NMED will be scheduled to discuss the revised site conceptual model and the underlying assumptions.

Work will continue on the preparation of the crosswalk documenting the closure/post closure care requirements and associated corrective measures.

Public and Stakeholder Involvement

A make-up meeting is scheduled in Santa Fe on February 14, 2002, from 3–5 pm, to brief individuals who have not been able to attend previous focus group meetings.

The fourth focus group meeting is scheduled for February 26, 2002, to select an independent peer reviewer for the MDA H CMS report and to discuss the progress and preliminary findings of the CMS report.

References

Environmental Restoration Project, March 2001. "Corrective Measures Study Plan for Material Disposal Area H at Technical Area 54," Los Alamos National Laboratory report LA-UR-01-1629, Los Alamos, New Mexico. (Environmental Restoration Project 2001, 70319)

Environmental Restoration Project, February 2002. "Progress Report for Corrective Measures Study for Material Disposal Area H, Potential Release Site 54-004 at Technical Area 54, April through December 2001," Los Alamos National Laboratory report LA-UR-02-0328, Los Alamos, New Mexico. (Environmental Restoration Project 2002, 71479)

Young, J., December 3, 2001. "Additional Fieldwork at MDA H, 54-004," New Mexico Environment Department letter (HWB-LANL-01-001) to J. Browne and M. Johansen from John Young (LANL Corrective Action Project Leader), Santa Fe, New Mexico. (Young 2001, 71537)